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C! <120> Improvements in or relating to organic compounds

<130> S-137-1103/SG/A/SGS/PCT /

<140> US 09/180,798

<141> November 16, 1999

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<170> PatentIn Ver. 2.1

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In re Application DeVries et al.
09/180,798

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Trp Asp Glu Trp Gln Lys Val Glu Val Ile His Gln Asp Val Glu Leu
515 520 525

Ala Pro His Arg Thr Ser Glu Trp Ile Leu Asp Ser Thr Asp Asn Leu
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14

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<210> 9
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<210> 19
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<213> Arabidopsis thaliana

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Pro	Asn	His	Ser	Leu	Trp	Leu	Ala	Ser	Ala	Asn	Leu	Glu	Gly	Asp	Ala	20	25	30
Leu	His	Thr	Leu	Arg	Val	Thr	Leu	Val	Asp	Pro	Asn	Asn	Val	Leu	Gln	35	40	45
Ser	Trp	Asp	Pro	Thr	Leu	Val	Asn	Pro	Cys	Thr	Trp	Phe	His	Val	Thr	50	55	60
Cys	Asn	Asn	Glu	Asn	Ser	Val	Ile	Arg	Val	Asp	Leu	Gly	Asn	Ala	Glu	65	70	75
Leu	Ser	Gly	His	Leu	Val	Pro	Glu	Leu	Gly	Val	Leu	Lys	Asn	Leu	Gln	85	90	95
Glu	Leu	Tyr	Ser	Asn	Asn	Ile	Thr	Gly	Pro	Ile	Pro	Ser	Asn	Leu	Gly	100	105	110
Asn	Leu	Thr	Asn	Leu	Val	Ser	Leu	Asp	Leu	Tyr	Leu	Asn	Ser	Phe	Ser	115	120	125
Gly	Pro	Ile	Pro	Glu	Ser	Leu	Gly	Lys	Leu	Ser	Lys	Leu	Arg	Phe	Leu	130	135	140
Arg	Leu	Asn	Asn	Asn	Ser	Leu	Thr	Gly	Ser	Ile	Pro	Met	Ser	Leu	Thr	145	150	155
Asn	Ile	Thr	Thr	Leu	Gln	Val	Leu	Asp	Leu	Ser	Asn	Asn	Arg	Leu	Ser	165	170	175
Gly	Ser	Val	Pro	Asp	Asn	Gly	Ser	Phe	Ser	Leu	Phe	Thr	Pro	Ile	Ser	180	185	190
Phe	Ala	Asn	Asn	Leu	Asp	Leu	Cys	Gly	Pro	Val	Thr	Ser	His	Pro	Cys	195	200	205
Pro	Gly	Ser	Pro	Pro	Phe	Ser	Pro	Pro	Pro	Pro	Phe	Ile	Gln	Pro	Pro	210	215	220
Pro	Val	Ser	Thr	Pro	Ser	Gly	Tyr	Gly	Ile	Thr	Gly	Ala	Ile	Ala	Gly	225	230	235
Gly	Val	Ala	Ala	Gly	Ala	Ala	Leu	Leu	Phe	Ala	Ala	Pro	Ala	Ile	Ala	245	250	255
Phe	Ala	Trp	Trp	Arg	Arg	Arg	Lys	Pro	Leu	Asp	Ile	Phe	Phe	Asp	Val	260	265	270
Pro	Ala	Glu	Glu	Asp	Pro	Glu	Val	His	Leu	Gly	Gln	Leu	Lys	Arg	Phe	275	280	285
Ser	Leu	Arg	Glu	Leu	Gln	Val	Ala	Ser	Asp	Gly	Phe	Ser	Asn	Lys	Asn	290	295	300
Ile	Leu	Gly	Arg	Gly	Gly	Phe	Gly	Lys	Val	Tyr	Lys	Gly	Arg	Leu	Ala	305	310	315
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Asp Gly Thr Leu Val Ala Val Lys Arg Leu Lys Glu Glu Arg Thr Pro
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Gly Gly Glu Leu Gln Phe Gln Thr Glu Val Glu Met Ile Ser Met Ala
      340                      345                      350

Val His Arg Asn Leu Leu Arg Leu Arg Gly Phe Cys Met Thr Pro Thr
      355                      360                      365

Glu Arg Leu Leu Val Tyr Pro Tyr Met Ala Asn Gly Ser Val Ala Ser
      370                      375                      380

Cys Leu Arg Glu Arg Pro Pro Ser Gln Pro Pro Leu Asp Trp Pro Thr
385                      390                      395                      400

Arg Lys Arg Ile Ala Leu Gly Ser Ala Arg Gly Leu Ser Tyr Leu His
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Asp His Cys Asp Pro Lys Ile Ile His Arg Asp Val Lys Ala Ala Asn
      420                      425                      430

Ile Leu Leu Asp Glu Glu Phe Glu Ala Val Val Gly Asp Phe Gly Leu
      435                      440                      445

Ala Lys Leu Met Asp Tyr Lys Asp Thr His Val Thr Thr Ala Val Arg
      450                      455                      460

Gly Thr Ile Gly His Ile Ala Pro Glu Tyr Leu Ser Thr Gly Lys Ser
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cttaaacctc cgaaagctca c atg gcg tct cga aac tat cgg tgg gag ctc 171
                        Met Ala Ser Arg Asn Tyr Arg Trp Glu Leu
                        1                      5                      10

ttc gca gct tcg tta acc cta acc tta gct ttg att cac ctg gtc gaa 219
Phe Ala Ala Ser Leu Thr Leu Thr Leu Ala Leu Ile His Leu Val Glu
      15                      20                      25

gca aac tcc gaa gga gat gct ctc tac gct ctt cgc cgg agt ttg aca 267

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Ala	Asn	Ser	Glu	Gly	Asp	Ala	Leu	Tyr	Ala	Leu	Arg	Arg	Ser	Leu	Thr		
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Asp	Pro	Asp	His	Val	Leu	Gln	Ser	Trp	Asp	Pro	Thr	Leu	Val	Asn	Pro		
		45					50				55						
tgt	acc	tgg	ttc	cat	gtc	acc	tgt	aac	caa	gac	aac	cgc	gtc	act	cgt	363	
Cys	Thr	Trp	Phe	His	Val	Thr	Cys	Asn	Gln	Asp	Asn	Arg	Val	Thr	Arg		
		60				65				70							
gtg	gat	ttg	gga	aat	tca	aac	ctc	tct	gga	cat	ctt	gcg	cct	gag	ctt	411	
Val	Asp	Leu	Gly	Asn	Ser	Asn	Leu	Ser	Gly	His	Leu	Ala	Pro	Glu	Leu		
	75				80				85						90		
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Gly	Lys	Leu	Glu	His	Leu	Gln	Tyr	Leu	Glu	Leu	Tyr	Lys	Asn	Asn	Ile		
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caa	gga	act	ata	cct	tcc	gaa	ctt	gga	aat	ctg	aag	aat	ctc	atc	agc	507	
Gln	Gly	Thr	Ile	Pro	Ser	Glu	Leu	Gly	Asn	Leu	Lys	Asn	Leu	Ile	Ser		
			110					115					120				
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Leu	Asp	Leu	Tyr	Asn	Asn	Asn	Leu	Thr	Gly	Ile	Val	Pro	Thr	Phe	Leu		
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gga	aaa	ttg	aag	tct	ctg	gtc	ttt	tta	cgg	ctt	aat	gac	aac	cga	ttg	603	
Gly	Lys	Leu	Lys	Ser	Leu	Val	Phe	Leu	Arg	Leu	Asn	Asp	Asn	Arg	Leu		
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Thr	Gly	Pro	Ile	Leu	Glu	His	Ser	Arg	Gln	Ser	Gln	Ala	Phe	Lys	Val		
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Val	Asp	Val	Ser	Ser	Asn	Asp	Leu	Cys	Gly	Thr	Ile	Pro	Thr	Asn	Gly		
				175				180						185			
ccc	ttt	gct	cac	att	cct	tta	cag	aac	ttt	gag	aac	aac	ccg	aga	ttg	747	
Pro	Phe	Ala	His	Ile	Pro	Leu	Gln	Asn	Phe	Glu	Asn	Asn	Pro	Arg	Leu		
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35 40 45
Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe His Val
50 55 60
Thr Cys Asn Gln Asp Asn Arg Val Thr Arg Val Asp Leu Gly Asn Ser
65 70 75 80
Asn Leu Ser Gly His Leu Ala Pro Glu Leu Gly Lys Leu Glu His Leu
85 90 95
Gln Tyr Leu Glu Leu Tyr Lys Asn Asn Ile Gln Gly Thr Ile Pro Ser
100 105 110
Glu Leu Gly Asn Leu Lys Asn Leu Ile Ser Leu Asp Leu Tyr Asn Asn
115 120 125
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145 150 155 160
His Ser Arg Gln Ser Gln Ala Phe Lys Val Val Asp Val Ser Ser Asn
165 170 175
Asp Leu Cys Gly Thr Ile Pro Thr Asn Gly Pro Phe Ala His Ile Pro
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Gly Leu Ala Ser Tyr Asp Thr Asn Cys Thr
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                               Met Ala Ser Arg
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aac tat cgg tgg gag ctc ttc gca gct tcg tta acc cta acc tta gct 163
Asn Tyr Arg Trp Glu Leu Phe Ala Ala Ser Leu Thr Leu Thr Leu Ala
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ttg att cac ctg gtc gaa gca aac tcc gaa gga gat gct ctc tac gct 211
Leu Ile His Leu Val Glu Ala Asn Ser Glu Gly Asp Ala Leu Tyr Ala
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ctt cgc cgg agt ttg aca gat cca gac cat gtc ctc cag agc tgg gat 259
Leu Arg Arg Ser Leu Thr Asp Pro Asp His Val Leu Gln Ser Trp Asp
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cca act ctt gtt aat cct tgt acc tgg ttc cat gtc acc tgt aac caa 307
Pro Thr Leu Val Asn Pro Cys Thr Trp Phe His Val Thr Cys Asn Gln
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gac aac cgc gtc act cgt gtg gat ttg gga aat tca aac ctc tct gga 355
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cat ctt gcg cct gag ctt ggg aag ctt gaa cat tta cag tat cta gag 403
His Leu Ala Pro Glu Leu Gly Lys Leu Glu His Leu Gln Tyr Leu Glu
              85              90              95              100

ctc tac aaa aac aac atc caa gga act ata cct tcc gaa ctt gga aat 451
Leu Tyr Lys Asn Asn Ile Gln Gly Thr Ile Pro Ser Glu Leu Gly Asn
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ctg aag aat ctc atc agc ttg gat ctg tac aac aac aat ctt aca ggg 499
Leu Lys Asn Leu Ile Ser Leu Asp Leu Tyr Asn Asn Asn Leu Thr Gly
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              135              140              145

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Leu Asn Asp Asn Arg Leu Thr Gly Pro Ile Pro Arg Ala Leu Thr Ala
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atc cca agc ctt aaa gtt gtt gac gtc tca agc aat gat ttg tgt gga 643
Ile Pro Ser Leu Lys Val Val Asp Val Ser Ser Asn Asp Leu Cys Gly
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      200                      205                      210

tac gac act aac tgc acc tgaacaact ggcaaacct gaaaatgaag 787
Tyr Asp Thr Asn Cys Thr
      215

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aaattactca cact 981

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Ala Leu Tyr Ala Leu Arg Arg Ser Leu Thr Asp Pro Asp His Val Leu
      35              40              45

Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe His Val
      50              55              60

Thr Cys Asn Gln Asp Asn Arg Val Thr Arg Val Asp Leu Gly Asn Ser
      65              70              75              80

Asn Leu Ser Gly His Leu Ala Pro Glu Leu Gly Lys Leu Glu His Leu
      85              90              95

Gln Tyr Leu Glu Leu Tyr Lys Asn Asn Ile Gln Gly Thr Ile Pro Ser
      100              105              110

Glu Leu Gly Asn Leu Lys Asn Leu Ile Ser Leu Asp Leu Tyr Asn Asn
      115              120              125

Asn Leu Thr Gly Ile Val Pro Thr Ser Leu Gly Lys Leu Lys Ser Leu
      130              135              140

Val Phe Leu Arg Leu Asn Asp Asn Arg Leu Thr Gly Pro Ile Pro Arg
      145              150              155              160

Ala Leu Thr Ala Ile Pro Ser Leu Lys Val Val Asp Val Ser Ser Asn

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165	170	175	
Asp Leu Cys Gly Thr Ile Pro Thr Asn Gly Pro Phe Ala His Ile Pro			
180	185	190	
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Gly Leu Ala Ser Tyr Asp Thr Asn Cys Thr			
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1 5 10 15			
tta atc cta acc tta gct ttg att cac ctg gtc gaa gca aac tcc gaa	97		
Leu Ile Leu Thr Leu Ala Leu Ile His Leu Val Glu Ala Asn Ser Glu			
20 25 30			
gga gat gct ctt tac gct ctt cgc cgg agt tta aca gat ccg gac cat	145		
Gly Asp Ala Leu Tyr Ala Leu Arg Arg Ser Leu Thr Asp Pro Asp His			
35 40 45			
gtt ctc cag agc tgg gat cca act ctt gtt aat cct tgt acc tgg ttc	193		
Val Leu Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe			
50 55 60			
cat gtc acc tgt aac caa gac aac cgc gtc act cgt gtg gat ttg ggg	241		
His Val Thr Cys Asn Gln Asp Asn Arg Val Thr Arg Val Asp Leu Gly			
65 70 75 80			
aat tca aac ctc tct gga cat ctt gcg cct gag ctt ggg aag ctt gaa	289		
Asn Ser Asn Leu Ser Gly His Leu Ala Pro Glu Leu Gly Lys Leu Glu			
85 90 95			
cat tta cag tat cta gag ctc tac aaa aac aac atc caa gga act ata	337		
His Leu Gln Tyr Leu Glu Leu Tyr Lys Asn Asn Ile Gln Gly Thr Ile			
100 105 110			
cct tcc gaa ctt gga aat ctg aag aat ctc atc agc ttg gat ctg tac	385		
Pro Ser Glu Leu Gly Asn Leu Lys Asn Leu Ile Ser Leu Asp Leu Tyr			
115 120 125			
aac aac aat ctt aca ggg ata gtt ccc act tct ttg gga aaa ttg aag	433		
Asn Asn Asn Leu Thr Gly Ile Val Pro Thr Ser Leu Gly Lys Leu Lys			

130	135	140	
tct ctg gtc ttt tta cgg ctt aat gac aac cga ttg acg ggg cca atc			481
Ser Leu Val Phe Leu Arg Leu Asn Asp Asn Arg Leu Thr Gly Pro Ile			
145	150	155	160
cct aga gca ctc act gca atc cca agc ctt aaa gtt gtt gat gtc tca			529
Pro Arg Ala Leu Thr Ala Ile Pro Ser Leu Lys Val Val Asp Val Ser			
	165	170	175
agc aat gat ttg tgt gga aca atc cca aca aac gga cct ttt gct cac			577
Ser Asn Asp Leu Cys Gly Thr Ile Pro Thr Asn Gly Pro Phe Ala His			
	180	185	190
att cct tta cag aac ttt gag aac aac ccg agg ttg gag gga ccg gaa			625
Ile Pro Leu Gln Asn Phe Glu Asn Asn Pro Arg Leu Glu Gly Pro Glu			
	195	200	205
tta ctc ggt ctt gca agc tac gac act aac tgc acc tgaaaaaatt			671
Leu Leu Gly Leu Ala Ser Tyr Asp Thr Asn Cys Thr			
	210	215	220
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caaatatcac atctactatg taataagtat atatatgtag tccaaaaaaa aaaaaaaa			789
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Leu Ile Leu Thr Leu Ala Leu Ile His Leu Val Glu Ala Asn Ser Glu			
	20	25	30
Gly Asp Ala Leu Tyr Ala Leu Arg Arg Ser Leu Thr Asp Pro Asp His			
	35	40	45
Val Leu Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe			
	50	55	60
His Val Thr Cys Asn Gln Asp Asn Arg Val Thr Arg Val Asp Leu Gly			
	65	70	75
Asn Ser Asn Leu Ser Gly His Leu Ala Pro Glu Leu Gly Lys Leu Glu			
	85	90	95
His Leu Gln Tyr Leu Glu Leu Tyr Lys Asn Asn Ile Gln Gly Thr Ile			
	100	105	110
Pro Ser Glu Leu Gly Asn Leu Lys Asn Leu Ile Ser Leu Asp Leu Tyr			
	115	120	125

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Asn Asn Asn Leu Thr Gly Ile Val Pro Thr Ser Leu Gly Lys Leu Lys
 130                      135                      140

Ser Leu Val Phe Leu Arg Leu Asn Asp Asn Arg Leu Thr Gly Pro Ile
145                      150                      155                      160

Pro Arg Ala Leu Thr Ala Ile Pro Ser Leu Lys Val Val Asp Val Ser
                      165                      170                      175

Ser Asn Asp Leu Cys Gly Thr Ile Pro Thr Asn Gly Pro Phe Ala His
                      180                      185                      190

Ile Pro Leu Gln Asn Phe Glu Asn Asn Pro Arg Leu Glu Gly Pro Glu
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agc tta tca gat cca gac aat gtt gtt cag agt tgg gat cca act ctt 96
Ser Leu Ser Asp Pro Asp Asn Val Val Gln Ser Trp Asp Pro Thr Leu
                      20                      25                      30

gtt aat cct tgt act tgg ttt cat gtc act tgt aat caa cac cat caa 144
Val Asn Pro Cys Thr Trp Phe His Val Thr Cys Asn Gln His His Gln
                      35                      40                      45

gtc act cgt ctg gat ttg ggg aat tca aac tta tct gga cat cta gta 192
Val Thr Arg Leu Asp Leu Gly Asn Ser Asn Leu Ser Gly His Leu Val
                      50                      55                      60

cct gaa ctt ggg aag ctt gaa cat tta caa tat ctg tat gga atc atc 240
Pro Glu Leu Gly Lys Leu Glu His Leu Gln Tyr Leu Tyr Gly Ile Ile
 65                      70                      75                      80

act ctt ttg cct ttt gat tat ctg aaa aca ttt aca tta tca gtc aca 288
Thr Leu Leu Pro Phe Asp Tyr Leu Lys Thr Phe Thr Leu Ser Val Thr
                      85                      90                      95

cat ata aca ttt tgc ttt gag tca tat agt gaa ctc tac aaa aac gag 336
His Ile Thr Phe Cys Phe Glu Ser Tyr Ser Glu Leu Tyr Lys Asn Glu
                      100                      105                      110

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att caa gga act ata cct tct gag ctt gga aat ctg aag agt cta atc 384
Ile Gln Gly Thr Ile Pro Ser Glu Leu Gly Asn Leu Lys Ser Leu Ile
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agt ttg gat ctg tac aac aac aat ctc acc ggg aaa atc cca tct tct 432
Ser Leu Asp Leu Tyr Asn Asn Asn Leu Thr Gly Lys Ile Pro Ser Ser
      130                135                140

ttg gga aaa ttg aag tca ctt gtt ttt ttg cgg ctt aac gaa aac cga 480
Leu Gly Lys Leu Lys Ser Leu Val Phe Leu Arg Leu Asn Glu Asn Arg
145                150                155                160

ttg acc ggt cct att cct aga gaa ctc aca gtt att tca agc ctt aaa 528
Leu Thr Gly Pro Ile Pro Arg Glu Leu Thr Val Ile Ser Ser Leu Lys
      165                170                175

gtt gtt gat gtc tca ggg aat gat ttg tgt gga aca att cca gta gaa 576
Val Val Asp Val Ser Gly Asn Asp Leu Cys Gly Thr Ile Pro Val Glu
      180                185                190

gga cct ttt gaa cac att cct atg caa aac ttt gag aac aac ctg aga 624
Gly Pro Phe Glu His Ile Pro Met Gln Asn Phe Glu Asn Asn Leu Arg
      195                200                205

ttg gag gga cca gaa cta cta ggt ctt gcg agc tat gac acc aat tgc 672
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      210                215                220

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Thr
225

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gctttgagag acagtaactt gcaatgtatt ggtattggta gaaaaagttg aaatgagaat 845

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Val Asn Pro Cys Thr Trp Phe His Val Thr Cys Asn Gln His His Gln
      35              40              45

Val Thr Arg Leu Asp Leu Gly Asn Ser Asn Leu Ser Gly His Leu Val
      50              55              60

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Pro Glu Leu Gly Lys Leu Glu His Leu Gln Tyr Leu Tyr Gly Ile Ile
65 70 75 80

Thr Leu Leu Pro Phe Asp Tyr Leu Lys Thr Phe Thr Leu Ser Val Thr
85 90 95

His Ile Thr Phe Cys Phe Glu Ser Tyr Ser Glu Leu Tyr Lys Asn Glu
100 105 110

Ile Gln Gly Thr Ile Pro Ser Glu Leu Gly Asn Leu Lys Ser Leu Ile
115 120 125

Ser Leu Asp Leu Tyr Asn Asn Asn Leu Thr Gly Lys Ile Pro Ser Ser
130 135 140

Leu Gly Lys Leu Lys Ser Leu Val Phe Leu Arg Leu Asn Glu Asn Arg
145 150 155 160

Leu Thr Gly Pro Ile Pro Arg Glu Leu Thr Val Ile Ser Ser Leu Lys
165 170 175

Val Val Asp Val Ser Gly Asn Asp Leu Cys Gly Thr Ile Pro Val Glu
180 185 190

Gly Pro Phe Glu His Ile Pro Met Gln Asn Phe Glu Asn Asn Leu Arg
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Thr
225

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Met Ala Ser Arg
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aac tat cgg tgg gag ctc ttc gca gct tcg tta atc cta acc tta gct 165
Asn Tyr Arg Trp Glu Leu Phe Ala Ala Ser Leu Ile Leu Thr Leu Ala
5 10 15 20
ttg att cac ctg gtc gaa gca aac tcc gaa gga gat gct ctt tac gct 213

Leu	Ile	His	Leu	Val	Glu	Ala	Asn	Ser	Glu	Gly	Asp	Ala	Leu	Tyr	Ala		
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ctt	cgc	cgg	agt	tta	aca	gat	ccg	gac	cat	gtt	ctc	cag	agc	tgg	gat	261	
Leu	Arg	Arg	Ser	Leu	Thr	Asp	Pro	Asp	His	Val	Leu	Gln	Ser	Trp	Asp		
			40					45					50				
cca	act	ctt	gtt	aat	cct	tgt	acc	tgg	ttc	cat	gtc	acc	tgt	aac	caa	309	
Pro	Thr	Leu	Val	Asn	Pro	Cys	Thr	Trp	Phe	His	Val	Thr	Cys	Asn	Gln		
		55					60					65					
gac	aac	cgc	gtc	act	cgt	gtg	gat	ttg	ggg	aat	tca	aac	ctc	tct	gga	357	
Asp	Asn	Arg	Val	Thr	Arg	Val	Asp	Leu	Gly	Asn	Ser	Asn	Leu	Ser	Gly		
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cat	ctt	gcg	cct	gag	ctt	ggg	aag	ctt	gaa	cat	tta	cag	tat	cta	gag	405	
His	Leu	Ala	Pro	Glu	Leu	Gly	Lys	Leu	Glu	His	Leu	Gln	Tyr	Leu	Glu		
	85				90					95					100		
ctc	tac	aaa	aac	aac	atc	caa	gga	act	ata	cct	tcc	gaa	ctt	gga	aat	453	
Leu	Tyr	Lys	Asn	Asn	Ile	Gln	Gly	Thr	Ile	Pro	Ser	Glu	Leu	Gly	Asn		
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ctg	aag	aat	ctc	atc	agc	ttg	gat	ctg	tac	aac	aac	aat	ctt	aca	ggg	501	
Leu	Lys	Asn	Leu	Ile	Ser	Leu	Asp	Leu	Tyr	Asn	Asn	Asn	Leu	Thr	Gly		
			120					125					130				
ata	gtt	ccc	act	tct	ttg	gga	aaa	ttg	aag	tct	ctg	gtc	ttt	tta	cgg	549	
Ile	Val	Pro	Thr	Ser	Leu	Gly	Lys	Leu	Lys	Ser	Leu	Val	Phe	Leu	Arg		
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Leu	Asn	Asp	Asn	Arg	Leu	Thr	Gly	Pro	Ile	Pro	Arg	Ala	Leu	Thr	Ala		
	150						155				160						
atc	cca	agc	ctt	aaa	gtt	gtt	gat	gtc	tca	agc	aat	gat	ttg	tgt	gga	645	
Ile	Pro	Ser	Leu	Lys	Val	Val	Asp	Val	Ser	Ser	Asn	Asp	Leu	Cys	Gly		
	165				170					175				180			
aca	atc	cca	aca	aac	gga	cct	ttt	gct	cac	att	cct	tta	cag	aac	ttt	693	
Thr	Ile	Pro	Thr	Asn	Gly	Pro	Phe	Ala	His	Ile	Pro	Leu	Gln	Asn	Phe		
				185					190					195			
gag	aac	aac	ccg	agg	ttg	gag	gga	ccg	gaa	tta	ctc	ggt	ctt	gca	agc	741	
Glu	Asn	Asn	Pro	Arg	Leu	Glu	Gly	Pro	Glu	Leu	Leu	Gly	Leu	Ala	Ser		
			200					205					210				
tac	gac	act	aac	tgc	acc	tgaaaaaatt	ggcaaacct	gaaaatgaag								789	
Tyr	Asp	Thr	Asn	Cys	Thr												
			215														
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taataagtat	atatatgtag	tccaaaaaaa	aatgaagaa	tcgaatcagt	aatatcatct											909	
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actgtaatgt tcggttggtg gattctgaga agtaacattt gtattggtat ggtatcaagt 1029
tgttctgcct tgtctgcaaa aaaaaaaaaa aaaa 1063

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35 40 45
Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe His Val
50 55 60
Thr Cys Asn Gln Asp Asn Arg Val Thr Arg Val Asp Leu Gly Asn Ser
65 70 75 80
Asn Leu Ser Gly His Leu Ala Pro Glu Leu Gly Lys Leu Glu His Leu
85 90 95
Gln Tyr Leu Glu Leu Tyr Lys Asn Asn Ile Gln Gly Thr Ile Pro Ser
100 105 110
Glu Leu Gly Asn Leu Lys Asn Leu Ile Ser Leu Asp Leu Tyr Asn Asn
115 120 125
Asn Leu Thr Gly Ile Val Pro Thr Ser Leu Gly Lys Leu Lys Ser Leu
130 135 140
Val Phe Leu Arg Leu Asn Asp Asn Arg Leu Thr Gly Pro Ile Pro Arg
145 150 155 160
Ala Leu Thr Ala Ile Pro Ser Leu Lys Val Val Asp Val Ser Ser Asn
165 170 175
Asp Leu Cys Gly Thr Ile Pro Thr Asn Gly Pro Phe Ala His Ile Pro
180 185 190
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<220>

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<222> (195)..(2069)

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cattgttggt tgaa atg gag tcg agt tat gtg gtg ttt atc tta ctt tca 230
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Leu Ile Leu Leu Pro Asn His Ser Leu Trp Leu Ala Ser Ala Asn Leu
      15             20             25

gaa ggt gat gct ttg cat act ttg agg gtt act cta gtt gat cca aac 326
Glu Gly Asp Ala Leu His Thr Leu Arg Val Thr Leu Val Asp Pro Asn
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aat gtc ttg cag agc tgg gat cct acg cta gtg aat cct tgc aca tgg 374
Asn Val Leu Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp
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Phe His Val Thr Cys Asn Asn Glu Asn Ser Val Ile Arg Val Asp Leu
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Gly Asn Ala Glu Leu Ser Gly His Leu Val Pro Glu Leu Gly Val Leu
      80             85             90

aag aat ttg cag tat ttg gag ctt tac agt aac aac ata act ggc ccg 518
Lys Asn Leu Gln Tyr Leu Glu Leu Tyr Ser Asn Asn Ile Thr Gly Pro
      95             100             105

att cct agt aat ctt gga aat ctg aca aac tta gtg agt ttg gat ctt 566
Ile Pro Ser Asn Leu Gly Asn Leu Thr Asn Leu Val Ser Leu Asp Leu
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Tyr Leu Asn Ser Phe Ser Gly Pro Ile Pro Glu Ser Leu Gly Lys Leu
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190 195 200	
ggt aca agt cac cca tgt cct gga tct ccc ccg ttt tct cct cca cca	854
Val Thr Ser His Pro Cys Pro Gly Ser Pro Phe Ser Pro Pro Pro	
205 210 215 220	
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Pro Phe Ile Gln Pro Pro Pro Val Ser Thr Pro Ser Gly Tyr Gly Ile	
225 230 235	
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Thr Gly Ala Ile Ala Gly Gly Val Ala Ala Gly Ala Ala Leu Pro Phe	
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Ala Ala Pro Ala Ile Ala Phe Ala Trp Trp Arg Arg Arg Ser Pro Leu	
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Asp Ile Phe Phe Asp Val Pro Ala Glu Glu Asp Pro Glu Val His Leu	
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Gly Gln Leu Lys Arg Phe Ser Leu Arg Glu Leu Gln Val Ala Ser Asp	
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305 310 315	
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320 325 330	
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Lys Glu Glu Arg Thr Pro Gly Gly Glu Leu Gln Phe Gln Thr Glu Val	
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Glu Met Ile Ser Met Ala Val His Arg Asn Leu Leu Arg Leu Arg Gly	
350 355 360	
ttc tgt atg aca ccg acc gag aga ttg ctt gtg tat cct tac atg gcc	1334
Phe Cys Met Thr Pro Thr Glu Arg Leu Leu Val Tyr Pro Tyr Met Ala	
365 370 375 380	
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Asn Gly Ser Val Ala Ser Cys Leu Arg Glu Arg Pro Pro Ser Gln Pro	
385 390 395	

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cgg cta gct aac gac gac gac gtc atg tta ctt gac tgg gtg aaa gga Arg Leu Ala Asn Asp Asp Asp Val Met Leu Leu Asp Trp Val Lys Gly 510 515 520	1766
ttg ttg aag gag aag aag cta gag atg tta gtg gat cca gat ctt caa Leu Leu Lys Glu Lys Lys Leu Glu Met Leu Val Asp Pro Asp Leu Gln 525 530 535 540	1814
aca aac tac gag gag aga gaa ctg gaa caa gtg ata caa gtg gcg ttg Thr Asn Tyr Glu Glu Arg Glu Leu Glu Gln Val Ile Gln Val Ala Leu 545 550 555	1862
cta tgc acg caa gga tca cca atg gaa aga cca aag atg tct gaa gtt Leu Cys Thr Gln Gly Ser Pro Met Glu Arg Pro Lys Met Ser Glu Val 560 565 570	1910
gta agg atg ctg gaa gga gat ggg ctt gcg gag aaa tgg gac gaa tgg Val Arg Met Leu Glu Gly Asp Gly Leu Ala Glu Lys Trp Asp Glu Trp 575 580 585	1958
caa aaa gtt gag att ttg agg gaa gag att gat ttg agt cct aat cct Gln Lys Val Glu Ile Leu Arg Glu Glu Ile Asp Leu Ser Pro Asn Pro 590 595 600	2006
aac tct gat tgg att ctt gat tct act tac aat ttg cac gcc gtt gag Asn Ser Asp Trp Ile Leu Asp Ser Thr Tyr Asn Leu His Ala Val Glu 605 610 615 620	2054
tta tct ggt cca agg taataaaaaa aaaaaaaa	2089

Leu Ser Gly Pro Arg
625

<210> 33
<211> 625
<212> PRT
<213> Arabidopsis thaliana

<400> 33
Met Glu Ser Ser Tyr Val Val Phe Ile Leu Leu Ser Leu Ile Leu Leu
1 5 10 15
Pro Asn His Ser Leu Trp Leu Ala Ser Ala Asn Leu Glu Gly Asp Ala
20 25 30
Leu His Thr Leu Arg Val Thr Leu Val Asp Pro Asn Asn Val Leu Gln
35 40 45
Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe His Val Thr
50 55 60
Cys Asn Asn Glu Asn Ser Val Ile Arg Val Asp Leu Gly Asn Ala Glu
65 70 75 80
Leu Ser Gly His Leu Val Pro Glu Leu Gly Val Leu Lys Asn Leu Gln
85 90 95
Tyr Leu Glu Leu Tyr Ser Asn Asn Ile Thr Gly Pro Ile Pro Ser Asn
100 105 110
Leu Gly Asn Leu Thr Asn Leu Val Ser Leu Asp Leu Tyr Leu Asn Ser
115 120 125
Phe Ser Gly Pro Ile Pro Glu Ser Leu Gly Lys Leu Ser Lys Leu Arg
130 135 140
Phe Leu Arg Leu Asn Asn Asn Ser Leu Thr Gly Ser Ile Pro Met Ser
145 150 155 160
Leu Thr Asn Ile Thr Thr Leu Gln Val Leu Asp Leu Ser Asn Asn Arg
165 170 175
Leu Ser Gly Ser Val Pro Asp Asn Gly Ser Phe Ser Leu Phe Thr Pro
180 185 190
Ile Ser Phe Ala Asn Asn Leu Asp Leu Cys Gly Pro Val Thr Ser His
195 200 205
Pro Cys Pro Gly Ser Pro Pro Phe Ser Pro Pro Pro Phe Ile Gln
210 215 220
Pro Pro Pro Val Ser Thr Pro Ser Gly Tyr Gly Ile Thr Gly Ala Ile
225 230 235 240
Ala Gly Gly Val Ala Ala Gly Ala Ala Leu Pro Phe Ala Ala Pro Ala
245 250 255

Ile	Ala	Phe	Ala	Trp	Trp	Arg	Arg	Arg	Ser	Pro	Leu	Asp	Ile	Phe	Phe	260	265	270	
Asp	Val	Pro	Ala	Glu	Glu	Asp	Pro	Glu	Val	His	Leu	Gly	Gln	Leu	Lys	275	280	285	
Arg	Phe	Ser	Leu	Arg	Glu	Leu	Gln	Val	Ala	Ser	Asp	Gly	Phe	Ser	Asn	290	295	300	
Lys	Asn	Ile	Leu	Gly	Arg	Gly	Gly	Phe	Gly	Lys	Val	Tyr	Lys	Gly	Arg	305	310	315	320
Leu	Ala	Asp	Gly	Thr	Leu	Val	Ala	Val	Lys	Arg	Leu	Lys	Glu	Glu	Arg	325	330	335	
Thr	Pro	Gly	Gly	Glu	Leu	Gln	Phe	Gln	Thr	Glu	Val	Glu	Met	Ile	Ser	340	345	350	
Met	Ala	Val	His	Arg	Asn	Leu	Leu	Arg	Leu	Arg	Gly	Phe	Cys	Met	Thr	355	360	365	
Pro	Thr	Glu	Arg	Leu	Leu	Val	Tyr	Pro	Tyr	Met	Ala	Asn	Gly	Ser	Val	370	375	380	
Ala	Ser	Cys	Leu	Arg	Glu	Arg	Pro	Pro	Ser	Gln	Pro	Pro	Leu	Asp	Trp	385	390	395	400
Pro	Thr	Arg	Lys	Arg	Ile	Ala	Leu	Gly	Ser	Ala	Arg	Gly	Leu	Ser	Tyr	405	410	415	
Leu	His	Asp	His	Cys	Asp	Pro	Lys	Ile	Ile	His	Arg	Asp	Val	Lys	Ala	420	425	430	
Ala	Asn	Ile	Leu	Leu	Asp	Glu	Glu	Phe	Glu	Ala	Val	Val	Gly	Asp	Phe	435	440	445	
Gly	Leu	Ala	Lys	Leu	Met	Asp	Tyr	Lys	Asp	Thr	His	Val	Thr	Thr	Ala	450	455	460	
Val	Arg	Gly	Thr	Ile	Gly	His	Ile	Ala	Pro	Glu	Tyr	Leu	Ser	Thr	Gly	465	470	475	480
Lys	Ser	Ser	Glu	Lys	Thr	Asp	Val	Phe	Gly	Tyr	Gly	Ile	Met	Leu	Leu	485	490	495	
Glu	Leu	Ile	Thr	Gly	Gln	Arg	Ala	Phe	Asp	Leu	Ala	Arg	Leu	Ala	Asn	500	505	510	
Asp	Asp	Asp	Val	Met	Leu	Leu	Asp	Trp	Val	Lys	Gly	Leu	Leu	Lys	Glu	515	520	525	
Lys	Lys	Leu	Glu	Met	Leu	Val	Asp	Pro	Asp	Leu	Gln	Thr	Asn	Tyr	Glu	530	535	540	
Glu	Arg	Glu	Leu	Glu	Gln	Val	Ile	Gln	Val	Ala	Leu	Leu	Cys	Thr	Gln	545	550	555	560

In re Application DeVries et al.
09/180,798

Gly Ser Pro Met Glu Arg Pro Lys Met Ser Glu Val Val Arg Met Leu
565 570 575

Glu Gly Asp Gly Leu Ala Glu Lys Trp Asp Glu Trp Gln Lys Val Glu
580 585 590

Ile Leu Arg Glu Glu Ile Asp Leu Ser Pro Asn Pro Asn Ser Asp Trp
595 600 605

Ile Leu Asp Ser Thr Tyr Asn Leu His Ala Val Glu Leu Ser Gly Pro
610 615 620

Arg
625

33

1